

**Amendment to the Claims**

This listing of claims will replace all prior versions and listings of claims in the application:

**Listing of Claims:**

Claim 1 (currently amended): A ~~variable length~~ broadband antenna for transmitting or receiving signals at a plurality of frequencies comprising:

a plurality of antenna segments;

a plurality of selectively actuatable switches for interconnecting said antenna segments;

and

a switching mechanism operably coupled to said plurality of selectively actuatable switches for actuating said plurality of switches at a switching rate that is greater than two times the highest of said plurality of frequencies.

Claim 2 (currently amended): A ~~variable length~~ The broadband antenna according to claim 1 wherein said switching mechanism comprises:

~~a switch controller; and~~

at least one light source operably coupled to said switch controller.

Claim 3 (currently amended): A ~~variable length~~ The broadband antenna according to claim 2 wherein said switch controller switches said at least one light source from a non-emissive to an emissive state or from an emissive to a non-emissive state.

Claim 4 (currently amended): ~~A variable length~~ The broadband antenna according to claim 3 wherein said at least one light source sequentially actuate said actuatable switches at said switching rate.

Claim 5 (currently amended): ~~A variable length~~ The broadband antenna according to claim 1 wherein said switching mechanism comprises:

a switching device;  
at least one light source operably coupled to said switching device; and  
a delay mechanism operably coupled to said at least one light source for effecting delay in actuating said plurality of selectively actuatable switches.

Claim 6 (currently amended): ~~A variable length~~ The broadband antenna according to claim 5 wherein said switching device simultaneously switches said at least one light source from a non-emissive to an emissive state or from an emissive to a non-emissive state.

~~Claim 7 (currently amended): A variable length~~ The broadband antenna according to claim 6 wherein said delay mechanism comprises a plurality of optical fibers and wherein each of said plurality of optical fibers has a different physical length with respect to the other optical fibers.

Claim 8 (currently amended): ~~A variable length~~ The broadband antenna according to claim 6 wherein said delay mechanism comprises a plurality of optical fibers and a plurality of optical retarders operably coupled to said plurality of optical fibers for changing the effective length.

Claim 9 (currently amended): ~~A variable length~~ The broadband antenna according to claim 1 wherein said switching mechanism comprises:

- a switching device;
- a single light source operably coupled to said switching device;
- at least one diffraction grating operably coupled to said light source; and
- a delay mechanism operably coupled to said at least one diffraction grating for effecting delay in actuating said plurality of selectively actuatable switches.

Claim 10 (currently amended): ~~A variable length~~ The broadband antenna according to claim 9 wherein said switching device switches said single light source from a non-emissive to an emissive state or from an emissive to a non-emissive state.

Claim 11 (currently amended): ~~A variable length~~ The broadband antenna according to claim 10 wherein said single light source is a multi-wavelength light source.

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wherein said at least one diffraction grating diffract light from said light source to produce a plurality of light sources.

Claim 13 (currently amended): ~~A variable length~~ The broadband antenna according to claim 10 wherein said delay mechanism comprises a plurality of optical fibers and wherein each of said plurality of optical fibers has a different physical length with respect to the other optical fibers.

Claim 14 (currently amended): A variable length The broadband antenna according to claim 10 wherein said delay mechanism comprises a plurality of optical fibers and a plurality of optical retarders operably coupled to said plurality of optical fibers for changing the effective length.

Claim 15 (currently amended): A variable length The broadband antenna according to claim 1 wherein each of said plurality of antenna segments comprises a dielectric container for holding a conductive fluid and wherein said variable length antenna further comprises:

a conductive fluid;  
a reservoir operably coupled to said plurality of dielectric containers for holding said conductive fluid; and  
a pressure regulator system operably coupled to said plurality of dielectric containers for controlling the pressure in said plurality of dielectric containers.

Claim 16 (currently amended): A variable length The broadband antenna according to claim 15 wherein said pressure regulator system comprises devices operably coupled to said plurality of

~~dielectric containers for controlling the pressure in said plurality of dielectric containers~~

Claim 17 (currently amended): A variable length broadband antenna for transmitting or receiving signals at a plurality of frequencies comprising:

a plurality of antenna segments; and  
a source of at least one electromagnetic beam for decoupling said antenna segments to change the frequency of operation.

Claim 18 (currently amended): A variable length The broadband antenna according to claim 17 wherein said source of at least one electromagnetic beam comprises at least one high frequency electromagnetic beam source.

Claim 19 (currently amended): A variable length The broadband antenna according to claim 18 wherein said source of at least one electromagnetic beam comprises a hydrogen cyanide (HCN) laser.

Claim 20 (currently amended): A variable length The broadband antenna according to claim 18 wherein said source of at least one electromagnetic beam comprises a hydrogen atom maser.

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